**Incumbency and Distributive Politics:**

**Intergovernmental Transfers in Mexico**

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**ABSTRACT**

*In this paper the objective is to focus on the likelihood that politicians will rely on intergovernmental transfers to pursue political ambition. In what circumstances are incumbents more likely to rely on transfers to win votes, than to reward core supporters? How are constraints (introduced to ensure that politicians rely on pre-determined formulae which reduce the incentive to design transfers to win re-election) likely to influence 'distributive politics'? Predictions in this paper are tested with reference to intergovernmental transfers to 31 Mexican states between 2004 and 2012.*

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## 1. Introduction

A theoretical literature focused on fiscal federalism argues that intergovernmental transfers can be designed to increase efficiency and to redistribute resources equitably (Oates, 1999) but, in practice, critics argue that intergovernmental transfers are more likely to be designed to pursue political ambition (Ferejohn, 1974; Rogoff and Siebert, 1988; Rogoff, 1990). A growing literature has identified the way that transfers have been designed to win votes (especially in developing countries). Politicians have designed transfers "….to enforce their electoral advantage" (Golden and Min, 2013:86). In this paper, the first objective is to question whether politicians in Mexico have designed intergovernmental transfers to win votes.

The question of whether politicians are likely to have engaged in 'distributive politics' in Mexico is important because:

(i) Mexico relies more heavily on transfers than almost every other federation. In 2005, transfers were typically 23% of total government expenditure; higher than the average of 13% of total government expenditure for all OECD countries (Blöchliger and Vammalle, 2009). In the 1980's, the National System of Fiscal Coordination *(Sistema Nacional de Coordinación Fiscal*) assigned authority to the federal government to raise value-added tax revenue, with the proviso that the federal government would distribute tax revenues to the 32 Mexican states. The states continued to surrender taxing powers to the federal government in the 1990s in exchange for greater access to intergovernmental transfers (Sobarzo Fimbres 2009). Between 2005 and 2010 the Mexican states received more than 85% of their total revenue in the form of intergovernmental transfers and their own revenue was less than 7% of their total revenue (Abbott et al. 2015).

(ii) An analysis of the disbursement of intergovernmental transfers in Mexico is also likely to offer insight into the relevance of changes in the intensity of electoral competition. Between 1929 and 2000, Mexico was governed by the same political party, the *PRI* (*Partido Revolucionario Institucional*) and there was very little competition. Every president, state governor, senator and

deputy were members of the *PRI*. In 1989, the first representative from a political party other than the *PRI* was elected governor (in the northern border state of Baja California). In the federal election of 1997 the *PRI* failed to win a majority in the Chamber of Deputies. It was only in 1998 that the *PRI* lost their qualified majority in the Chamber of Deputies for the first time.[1] Despite this the PRI maintains a large subnational state government presence (Timmons and Broid 2013).

(iii) An analysis of the disbursement of intergovernmental transfers in Mexico is also likely to offer insight into the relevance of the constraints that have been introduced to reduce politicians' reliance on 'distributive politics'. The first of these constraints is reliance on pre-determined formulae when designing intergovernmental transfers. In Mexico, the Chamber of Deputies (the Lower Chamber) has exclusive authority to approve (or reject) budgets and, since 2000, Mexican states have lobbied the Lower Chamber (Olmeda 2009). As the Chamber now receives proposals based on pre-determined formulae, the expectation is that pre-determined formulae will reduce politicians' *discretion* to rely on transfers to win votes.

A second constraint in Mexico is that incumbent politicians are not able to stand for immediate re-election to local, or to national, office. This constitutional constraint is designed to reduce the likelihood that politicians will focus on the self-serving strategy of approving transfers to maximise their personal popularity in their own constituencies.[2] The expectation is that this constraint will reduce politicians' *incentive* to design intergovernmental transfers to win votes.

The second objective in this paper is to explore, more generally, incumbents' *incentive* to design intergovernmental transfers to win votes. When are they more likely to design intergovernmental transfers to reward core supporters and when are they more likely to design intergovernmental transfers to win votes? The final objective is to focus on their *discretion* to rely on intergovernmental transfers. Are constitutional constraints (such as predetermined formulae for

[1] This happened after the election of July 1997 (Montero 2001).
[2] Commenting on the likelihood that political representatives might focus on political popularity rather than 'national interest', Epstein (2010: 851) argues that in a federation: *"The territorial nature of our political system directs elected officials to look locally even though their public duties extend nationally".*

intergovernmental transfers) likely to eliminate incumbents' discretion to design intergovernmental transfers to pursue electoral ambitions?

In the next section of the paper attention focuses on politicians' strategies to win political popularity. Section three describes the institutional background in which politicians allocate intergovernmental transfers. Section four of the paper describes the data and the model employed to test predictions formed in section two. The final section of the paper considers conclusions and policy recommendations.

## 2. Intergovernmental Transfers and Electoral Ambition

It is possible to draw on a well-established literature on 'distributive politics' to consider the alternative strategies that politicians might call on to win electoral support. When Golden and Min (2013) surveyed this literature they referred to the first strategy as one of *favouritism*. Incumbents disburse transfers to favour political (or ethnic) groups. Politicians are able to reward their core supporters with the rents they are able to disburse while they are in office.

The second strategy focuses on *competition for votes*. In this literature, studies often call on Dixit and Londregan's (1996) model, which suggests that politicians disburse transfers to groups of voters within a single constituency. While voters are assumed to have exogenous and fixed ideologies, some will support a political party further from their partisan reference point if that party offers a transfer that is large enough to outweigh their ideological attachment. Voters with strong partisan attachments require larger transfers than 'moderates'. Politicians usually compete for moderates (or 'swing voters'). It is impossible to ignore the likelihood that risk-averse politicians might target core supporters if they feel they have a substantial informational advantage about the nature of the transfers that will win support from core supporters (also see Cox and McCubbins, 1986). But Golden and Min (2013:79) argue that the "…results in (this) line of research are usually interpreted as favouring the swing-voters hypothesis".[3]

[3] In some instances, incumbents reward core supporters in jurisdictions with the highest proportion of votes for incumbents (Ansolabehere and Snyder, 2006; Hanes, 2007). However, in many other studies politicians design transfers to win 'swing states' (Case, 2001; Johansson, 2003; Dahlberg and Johansson, 2002).

When exploring politicians' incentive to win votes, Golden and Min (2013) also consider a literature that focuses on the *timing* of distributive politics (e.g. Shy and Svensoon 2006; Cole 2009). In this literature the question is "… whether politicians seeming to improve their chances of winning a forthcoming election deliberately allocate goods and services just prior to an election" (Golden and Min, 2013: 83).

When predicting politicians' behaviour in Mexico it is important to recognise the emergence and growth of electoral competition. In this paper, the hypothesis is that incumbents' strategies depend on their perception of the likelihood that they will be returned to office (see Frey and Schneider, 1978a; 1978b). The greater their perception of the intensity of electoral competition, the greater the likelihood that they will rely on a 'political business cycle' (Nordhaus 1975). The greater their perception of the intensity of electoral competition, the greater the incentive to consider the *timing* of elections and the importance of winning *swing states*.

In this paper, the objective is to focus on the design of intergovernmental transfers approved by the Chamber of Deputies between 2004 and 2012. Prior to 1998, the *PRI* was in full control of the Presidency and the Lower Chamber. The Lower Chamber had no real role to play. Budgets proposed by the President (via the Treasury) were approved without modification. When Kraemer (1997: 36) questioned the way that incumbents in Mexico pursued political ambition in *this* period, he reported that between 1986 and 1992 *"…states loyal to the PRI receive(d), ceteris paribus, more per capita funds than the opposition strongholds*". The strategy was one of favouritism (to reward core supporters). With political competition and with an increase in the diversity of representation in the Lower Chamber, the Lower Chamber would now play a more effective role and representatives had an incentive to design intergovernmental transfers to win 'swing states'. A 'swing state' is defined with reference to the difference between electoral support for the incumbent political party and electoral support for the next most successful political party.[4]

[4] While many studies support the prediction in Dixit and Londregan (1996) and Lindbeck and Weibull (1987) that politicians focus on 'swing voters', the tests focus on 'swing states', rather than on the individual voters within a constituency (e.g. Case 2001; Johansson 2003). Some have relied on survey data to estimate the distribution of ideological preferences in each constituency (Dahlberg and Johansson 2002) but analysis is still at the constituency level (Golden and Min 2013).
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Focusing on (i) *intergovernmental transfers to Mexican states* (approved by the Lower Chamber) and (ii) *elections of representatives to the Lower Chamber*, the first three testable predictions are:

*(i) In Mexico, politicians in the Chamber of Deputies are likely to have designed intergovernmental transfers to win votes.*

*(ii) Intergovernmental transfers are likely to have been higher in election years.*

*(iii) Intergovernmental transfers are likely to have favoured 'swing states'.*

When exploring the relevance of 'swing states', it is important to question whether incumbent governments might also have rewarded core supporters. Banful (2011) reported that intergovernmental transfers were disbursed to 'swing states' in Ghana and he also ran a test to check whether there was also evidence that politicians "…*target more resources on areas in which their political support is concentrated*" (p. 382). To support (and emphasise) the proposition that politicians have focused on 'swing states' in Mexico, the final prediction is that:

*(iv) Intergovernmental transfers are not likely to have simply favoured jurisdictions with the highest support for the incumbent party.*

## 3. Institutional Background

In this section of the paper the objective is to describe (i) the influence that the Lower Chamber is now able to exert and (ii) the intergovernmental transfers that the Lower Chamber has approved.

(i) Mexico has a presidential system, consisting of three levels of government: the federal union; the state governments (31 independent states and one federal district); and 2,457 municipalities. The federal government has three branches: executive, legislative and judicial. The executive consists of the President and Cabinet of Ministers, while the legislature has a Congress of the Union, consisting of a Senate (Upper Chamber) and a Chamber of Deputies (Lower Chamber). Within the Mexican

Constitution (Article 74), the Executive presents the federal budget (including the allocation of transfers), via the *Secretaría de Hacienda* (Treasury Ministry), to the Chamber of Deputies for approval. The Chamber of Deputies has 500 elected representatives. Each representative serves for a term of three years (with no possibility of immediate re-election) and the dates of the election are fixed. Three hundred of the 500 deputies are elected to single seats in a 'first past the post' voting system. The remainder are distributed through proportional representation. During the 1980s Mexico undertook fiscal reforms (see Rodriguez 1997; Diaz-Cayeros 2006; Timmons and Broid 2013) whereby the states surrendered the majority of its revenue raising powers to the federal government, in return for a guaranteed share of revenue in the form of federal transfers. As such, these transfers are the states own revenue by law.

Control of the Chamber of Deputies is very important. Gutiérrez et al. (2001) note that in many other federations this process would also require approval by a second chamber. Before 1998, discretion over revenue-sharing rested with the President and with the chief economic ministries (Montero, 2001). Today, the Chamber of Deputies is able to adjust the budget presented by the Executive.

When considering the discretion that the Chamber of Deputies has exercised, attention focuses on the extent to which it has approved transfers that differed from formulae-driven proposals. Sour et al. (2004) offer insight into the influence that the Chamber exerted when it approved budgets during the LVII (1998-2000) and LVIII (2001-2003) legislatures. They compared the Executive's proposals and the budgets that the Chamber approved. Table 1 is based on their analysis. There are differences between proposals and approvals (for conditional and for unconditional transfers) between 2001 and 2003. The differences are more significant in 2002 (the year before the federal election for the Chamber of Deputies).

< TABLE 1 NEAR HERE >

The Chamber has exercised discretion by approving transfers that differ from proposals based on pre-determined formulae (rather than by changing pre-determine formulae). With this awareness of the Chamber's discretion, a recent study of fiscal federal relations in Mexico refers to the 'ease' with which states "…lobby for higher federal transfers" (Caldera Sánchez 2013:17).

Federal governments don't enforce a hard budget on the states and extraordinary transfers still exist despite fiscal reforms.

Langston (2010) documents in detail the way state governors use their state deputies to influence and to benefit from increased federal transfers in the annual budgeting process and to bargain over fiscal bills. Influence is exerted in exchange for (i) political nominations and future political posts (in the context of non-consecutive re-election) and (ii) money and staff for political campaigns. He describes how the final negotiation over the annual spending bill is defined by the Budget Committee Chamber *(Comisión de Presupuesto y Cuenta Pública*) and how specific spending requests are received from state deputies (to be financed by additional federal transfers made available during the annual budget negotiations within the Chamber). "Supposedly, the distribution of … two transfers (*participaciones* and *aportaciones*) is controlled by a government formula, but in practice, individual accounts rise and fall over time in ways that cannot be explained by the formula" (Langston 2010: 264).

Timmons and Broid (2013) also note that Mexican states can exercise discretion in the allocation of transfers from the states to municipalities. This is either done explicitly or through changes to the allocation formula used for municipal transfers. Their further analysis suggests a partisan bias in transfers to municipalities governed by the PRI, but through formula allocation changes and through the short-term actions of governors e.g. where legislation is passed with weak scrutiny.

In this paper, attention will focus on transfers from the federal government to the Mexican states in the knowledge that transfers approved by the Chamber of Deputies have differed from proposals based on pre-determined formulae. Have political representatives in the Chamber exercised this discretion systematically? Have they exercised discretion in pursuit of political ambition?

(ii) Intergovernmental transfers to Mexican states are 43.4% of Mexico's total tax revenue, compared to an average of 10.4% for 8 other OECD economies (Bergvall et al. 2006). The corollary of this is that sub-central government 'own revenue' is a very small percentage of total revenue.

Figure 1 illustrates the growth of transfers and own state income in Mexico between 1990 and 2014. The proportion of total revenue raised by the states has fallen from 10.5% of total revenue in 1990 to 8.4% in 2014. Intergovernmental transfers have increased from 61% of total average states' revenue in 1990 to 85% in 2014.

< FIGURE 1 NEAR HERE >

The geographic distribution of mean transfers per capita (for the period 2004 to 2012) is illustrated in Table 2. Across the 31 states, on average, transfers amount to 9,432 Mexican Pesos per capita but the standard deviation is significant at 2,495 Pesos per capita. Richer states in the north contributed the largest shares of tax revenues to the federal government, but they received less (in per capita terms) than states in the south.

< TABLE 2 NEAR HERE >

It is important to note the distinction between two forms of intergovernmental transfers: discretionary (unconditional) transfers (*Participaciones)* and non-discretionary (conditional) transfers (*Aportaciones)*. The *Participaciones are discretionary (unconditional) in the sense that governments in local jurisdictions are able to choose how to spend the transfers.* Each form comprises eight funds:

*(i) Participaciones:* This system was established in 1980 (following the National System of Fiscal Consolidation) when the states agreed to restrain their own revenue raising authority. The *Fondo General de Participaciones* accounted for 86% of these transfers in 2010 (Caldera Sanchez 2013). The pre-determined formulae between 1991 and 2007 was: (i) 45.17% of transfers allocated proportionally to the population; (ii) 45.17% allocated with reference to the collection of three federal taxes levied by the states[5]; (iii) 9.66% allocated on a compensation basis (in inverse proportion to the number of people in each state). In 2007 the formulae changed and, from 2008, it was based on: (i) GDP growth weighted by population (60%); (ii) the level of own-income weighted by population (10%); (iii) own-income growth weighted by population (30%).

[5] Specifically for the collection of road tax, new vehicles tax and special taxes over products and services (e.g. alcohol and tobacco taxes).

Twenty per cent of finance for the *Fondo General* is provided by revenue from the *Recaudación Federal Participable* (*RFP*). The *RFP* comprises all tax revenue collected by the federal government, plus revenue from oil and mining rights but with the exception of (i) revenue levied on the road tax, the new vehicles tax and the special taxes on products and services, (ii) tax refunds and (iii) other minor exclusions. The other seven funds of *Participaciones* are mainly financed from the *RFP*; from oil royalties and from special taxes on alcohol and tobacco. The formulae for all eight funds is summarized in Table 1A of the Appendix.

*(ii) Aportaciones:* This system of non-discretionary transfers was introduced in 1997 with the consolidation of several categories of spending.[6] The transfers are distributed through eight different funds. The four largest funds in 2010 were for (i) education (59%), health (12%), social infrastructure (9%) and municipal development (9%) (Caldera Sanchez 2013). Earmarked transfers for education and for health (to pay teachers' and doctors' salaries) form the bulk of *Aportaciones* (Ahmed et al., 2007). Each fund has its own predetermined formulae, e.g.:

(a) education funds depend largely on school enrolment;

(b) health funds depend largely on inventories of medical infrastructure;

(c) social infrastructure funds (financed through the *RFP*) depend largely on estimates of poverty; per capita income; sewage and water service availability.

The formulae used for the allocation of the eight funds of the *Aportaciones* is summarized in Table 2A of the Appendix.[7]

The distinction between conditional and unconditional grants will become important later in the paper when reflecting on strategies to disburse transfers to win votes. One of the advantages of disbursement to core supporters is that incumbents have greater knowledge of core supporters' preferences (Box and McCubbins 1986). However, if local politicians of the same party as the incumbent at federal government are prepared to credit the federal-government incumbent when they

[6] More precisely, the categories consolidated under *Aportaciones* were those related to expenditure on health (*Ramo* 12), education (*Ramo* 25) and regional development (*Ramo* 26).
[7] For more details on the sources of funding for *Participaciones* and *Aportaciones* see Caldera Sanchez (2013).

receive transfers, an increase in unconditional transfers (that can be spent at the discretion of the recipient) might also be effective when competing for votes. Oates (1972) emphasised the importance of local governments' greater knowledge of local preferences to ensure that expenditures match the preferences of the median voter in the local jurisdiction. Here the intention is to consider the politics of disbursement of aggregate transfers and the disbursement of the unconditional (discretionary) *Participaciones*, because this greater knowledge of supportive local politicians might ensure that unconditional disbursements will be even more effective in terms of winning votes.

Throughout the empirical sections of the paper the question is whether the differences between formulae-driven proposals received by the Chamber and transfers approved by the Chamber reflected the pursuit of political ambition. Have politicians focused systematically on the timing of elections and on the importance of winning 'swing states'?

## 4. Testing Predictions

*The Data and the Model*

The empirical analysis was undertaken with data from 2003 to 2012 for all the Mexican states except Distrito Federal. Distrito Federal is the capital of the country and is administered differently. For instance, unlike other states, Distrito Federal does not receive conditional transfers to pay teachers' payroll (the federal government finances this expenditure in the Mexican capital).[8]

The states' own revenue data, as well as data for both *Participaciones* (discretionary transfers) and *Aportaciones* (non-discretionary transfers), were taken from *Estadísticas de las Finanzas Públicas Estatales y Municipales*, which is compiled by the *Instituto Nacional de Estadística y Geografía* (INEGI), Mexico's National Institute of Statistics. GDP per capita figures and unemployment series were drawn from INEGI's Economic Information Database. All of the data is presented in real pesos of 2003.

[8] Also, until 2014 Distrito Federal was not able to receive resources from the Fund for Social Infrastructure (the *FAIS*).

A dependency ratio was calculated as the ratio of citizens under the age of 15 and over the age of 64 to productive citizens (aged between 15 and 64) in each state. This ratio is important because provision of conditional transfers for programmes, such as education and health care, might be influenced by this ratio. The data were taken from *Consejo Nacional de Población.* Vote shares and vote margins were calculated with data from the *Instituto Nacional Electoral* (formerly known as *Instituto Federal Electoral*).

The sample period begins in 2003 because the paper focuses on states' real GDP per capita (compiled using constant 2003 prices). Before 2003 the available data (published from 1993 to 2006) was only available in constant 1993 prices. With a change in the base year, there was also a change in the methodology that was used to calculate prices, and it is not possible to obtain a consistent series. The estimation period loses one observation because we use a one-period lag structure (and, therefore, the main focus is on the period from 2004 to 2012).

Summary statistics of the variables used for estimation are presented in Table 3.

< TABLE 3 NEAR HERE >

Turning to the first set of predictions:

*(i)* *In Mexico, politicians in the Chamber of Deputies are likely to have designed intergovernmental transfers to win votes.*

*(ii)* *Intergovernmental transfers are likely to have been higher in election years.*

*(iii)* *Intergovernmental transfers are likely to have favoured 'swing states'.*

The determinants of intergovernmental per capita transfers for state *i* at time period *t* ($tr_{it}$) can be estimated through:

$$tr_{it} = \delta_1 tr_{it-1} + \delta_2 y_{it-1} + \delta_3 un_{it-1} + \delta_4 dr_{it-1} + \delta_5 rev_{t-1} + \delta_6 elec_t + \delta_7 marg in_{it-1} + \upsilon_i + \lambda_t + \varepsilon_{it} \quad (1)$$

The variables $tr_{it}$ and $y_{it-1}$ are expressed in natural logarithms. A one-period lag structure for the independent variables is used to account for administrative delays in the reaction of per capita transfer allocations, or delays due to federal budgetary processes. Lagged transfers capture also the

persistence or inertia in the evolution of transfers. Indeed, the use of predetermined formulae in the allocation of intergovernmental transfers makes both conditional and unconditional transfers more persistent.

In order to test the proposition that politicians in Mexico have designed intergovernmental transfers to win votes, it is also necessary to consider the relevance of the many other variables that might have acted as determinants of intergovernmental transfers. With evidence (Wildavsky 1988) that budgetary transfers in the current year are likely to depend on transfers that adjust for errors in the past, $tr_{it-1}$ was included in equation (1), with the expectation that $\delta_1>0$. As the institutional arrangement in Mexico is that the federal government acts as an agent, collecting tax revenues on behalf of local jurisdictions, it is also important to consider GDP per capita. To account for the reimbursement principle (*principio resarcitorio*), whereby richer states receive larger transfers (reflecting their higher contributions to federal tax revenues), *y* (the log level of real state GDP per capita) is included in equation (1) and the expectation is that $\delta_2>0$.

As federal governments might have disbursed higher transfers to states with higher unemployment rates (*un*) and to states with a higher dependency ratio (*dr*), these control variables are also included in equation (1), with the expectation that $\delta_3>0$ and $\delta_4>0$. The equation also includes the ratio of own revenue to total revenue (*rev*) and here the expectation is that $\delta_5<0$.

With the likelihood that intergovernmental transfers may have been designed to win votes, transfers are likely to have been higher in election years ($elec_t$). This study focuses on the *fixed term* elections to the Chamber of Deputies. Transfers are also likely to have depended on the difference in the vote-share for the incumbent party and for its nearest rival (*margin*) in each Mexican state. The smaller the difference in the vote margin between the two parties, the larger the expected transfers (so $\delta_7<0$). Panel-level effects are represented by $\upsilon_i$ and idiosyncratic time effects by $\lambda_t$. All reported estimated standard errors are clustered at the state level, so allowing for heteroscedasticity and arbitrary serial correlation between observations within each state.

*The Results*

Our chosen econometric specification includes the lagged level of transfers distributed to the states. This is important, since it enables us to differentiate between the short run and long run effects of our determinants (Jennes and Persyn 2015). Moreover, the allocation of transfers might be slow to adjust over time and conditional on past amounts, particularly in the Mexican case where allocation formulas are deemed particularly important to what states are expected to receive.

A problem that emerges when one tries to estimate the model in (1) using standard OLS methods is that, by including the lagged value of transfers on the right-hand side as a regressor, there is a bias caused by the correlation between this lagged variable and the error term. Controlling for a potential lagged transfers effect is very important in the context of Mexican transfers, since the formulaic allocation of transfers implies persistence should be expected and lobbying gives the potential to ensure a similar transfer allocation to the year before. To avoid such bias, we follow the example of Veiga and Veiga (2013) and Huang and Cheng (2012), who also employ the System Generalized Method of the Moments (SYS-GMM) estimator proposed by Blundell and Bond (1998) in modelling fiscal transfers in Portugal and China, respectively. Under SYS-GMM lags and lagged differences are employed to instrument for any endogenous variable. Relative to ordinary fixed effects models, SYS-GMM has the advantage of allowing the consistent estimation of endogenous right-hand-sidevariables, such as the lag of the dependent variable in equation (1), which account for persistence in the allocation of transfers. By construction, the choice of the appropriate number of lags (levels and differences) provides estimators free from endogeneity problems, as long as lags and lagged differences are uncorrelated with the error term in (1). Moreover, SYS-GMM estimators are said to be consistent if there is no second order serial correlation in the residuals according to the Arellano-Bond test and if the instruments employed are valid according to the Hansen test. Both tests are reported along the main estimates. We also report the difference-in-Hansen test for the exogeneity of instruments subset. Under the null hypothesis, the instruments subset is uncorrelated with the error term. Along with the previous two tests, this test needs to be satisfied to validate our SYS-GMM estimators.

The results from the SYS-GMM estimation of (1) are reported in Table 4. Persistence in the allocation of transfers (the impact of the previous year's transfers) is significant for both unconditional and conditional transfers. As might be expected, the allocation of transfers has a high degree of persistence, with monies distributed today being largely driven by allocations in the past year. The economic size of the state, as reflected in the state's GDP per capita, has a statistically significant and positive effect on both unconditional and conditional transfers. The coefficients are small in magnitude, implying that transfers are income inelastic, also the marginal effect is slightly stronger for unconditional transfers, which might be expected given the reimbursement principle (*principio resarcitorio*). Unemployment has no influence on transfers. This might be due to the fact that Mexico does not provide unemployment welfare benefits to its population. However, the dependency ratio $dr_{it-1}$ is statistically significant for overall transfers and for conditional transfers. This result might, in part, be explained by the importance of the poverty alleviation programmes that exist in Mexico (quantified as part of conditional transfers). The elasticity of 1.67 implies a 1% rise in the dependency ratio raises conditional transfers by 1.67%. The lagged value of the own to total revenue ratio (*rev*) is not statistically significant, implying the allocation of transfers is not sensitive to the extent to which states generate revenue from within their own borders.

< TABLE 4 NEAR HERE >

While the pattern of transfers across states is not sensitive to the state governments' ability to raise local government finance, total transfers are likely to be sensitive to the size of the federal government's revenue. Figure 2 shows a positive correlation between Mexico's federal revenue per capita and transfers per capita over the sample period. In Mexico, federal government revenues are likely to be sensitive to fluctuations in oil prices (as Mexico is a net exporter of crude oil and the government owns a significant proportion of the oil extraction rights).

< FIGURE 3 NEAR HERE >

Returning to Table 4, the political influence on the pattern of transfers is captured in the statistically significant influence of $elec_{t,}$ where transfers are higher during election years. It is also the case that $margin_{it-1}$ (the difference in vote shares between the incumbent and the nearest rival) is statistically significant for total transfers and for conditional transfers separately. The percentage

gain for conditional transfers comes from $e^{0.142}$-1=0.15, implying on average a 15% increase in conditional transfers during election years. Similarly, the gain in unconditional transfers is 10.7%. These results indicate that transfers are higher in election years and that politicians focus on 'swing states'. These results are consistent with Hernández-Trillos and Jarrillo-Rabling's (2008) evidence that conditional transfers for social infrastructure favour localities with higher 'swing voters'. They are also consistent with evidence that incumbents focus on 'swing states' in other developing countries (e.g. Banful, 2011).[9]

While intergovernmental transfers are likely to increase the popularity of the party in office in the local jurisdiction (Mueller 2003), incumbents at federal government also have an incentive to favour a 'swing state' controlled (with a narrow margin) by a competing party, as long as they believe that they can persuade local voters of the benevolence of the incumbent party at federal government. In Mexico, it was also the case that local jurisdictions with narrow majorities were likely to be favoured (irrespective of the party in office in local government) because no single party held a majority in the Chamber of Deputies between 2004 and 2012. The incumbent *at federal government* was not able to design intergovernmental transfers just to advantage its own representatives. Decisions at the Chamber of Deputies were the outcomes of *logrolling processes*.

Deputies from each political party attached priority to *quid pro quo* arrangements that favoured jurisdictions in which *their* party held a narrow majority, in return for the support they might provide for increased transfers to jurisdictions in which a competing political party held a narrow majority.

Turning to the final question of whether there is any support for the proposition that the Chamber of Deputies also rewarded core supporters, consider the final prediction:

*(iv) Intergovernmental transfers are not likely to have simply favoured jurisdictions with the highest support for the incumbent party.*

[9] Federal governments might also be sensitive to distributing transfers to particular "battleground states", where the margin of victory is very small. We therefore also test for the statistical significance of a variable that measures the difference between the vote share of the controlling party and 50%. However, hypothesis testing suggests the variable is not statistically significant.

Following a received procedure (Banful 2011), attention now focuses on a different equation. In equation 2 the proxy for 'swing states' ($margin_{it-1}$) has been replaced by $vote_{it-1}$ (the share of votes in each Mexican state for the incumbent party in the Lower Chamber in the last election):

$$tr_{it} = \delta_1 tr_{it-1} + \delta_2 y_{it-1} + \delta_3 un_{it-1} + \delta_4 dr_{it-1} + \delta_5 rev_{t-1} + \delta_6 elec_t + \delta_7 vote_{it-1} + \upsilon_i + \lambda_t + \varepsilon_{it} \quad (2)$$

The hypothesis is that transfers will be greater to the states that offer the incumbent party the greatest support. In Table 5, the evidence is that intergovernmental transfers are higher for the states that offer *lower* electoral support to the incumbent political party in the Lower Chamber (as measured by $vote_{it-1}$).

< TABLE 5 NEAR HERE >

This result is curious. As it implies that the most disloyal of states will receive the highest reward (*ceteris paribus*), there is no obvious incentive to signal this if the incumbents' intention is to win *more* votes in the next election. Diaz-Cayeros et al. (2012) present a persuasive critique of the proposition that core voters can always be relied on to support an incumbent. They argue that "*…voters become loyal to the party not only because they receive material benefits today, but because they expect to continue to receive benefits in the future*" (p. 24). It is difficult to rationalise systematic delivery of the highest reward to the least supportive voters. Diaz-Cayeros et al. acknowledge that there might often be incentives to offer rewards to swing voters because "*… the temptation to buy swing voters on spot necessarily increases in highly competitive elections,"* (p.117). However, at best, the negative coefficient on $vote_{it-1}$ is spurious.

Banful (2011) reported exactly the same result when he applied the same test for disbursements in Ghana. He reported that "*…the measure of political support for the ruling party…is statistically significant but has the opposite sign that is predicted by the 'core-supporter' model…*" (p.186). As there are difficulties in including both $margin_{it-1}$ and $vote_{it-1}$ in the same

equation (difficulties created by collinearity), we follow Banful's (2011) example; questioning the negative coefficient in equation 2 and attaching greater weight to the positive coefficient on $margin_{it-1}$ in equation 1.

## 5. Conclusions

The first conclusion in this paper is that the results in this paper are consistent with the prediction that incumbents in Mexico have designed intergovernmental transfers to win votes. After allowing for the impact of other determinants of intergovernmental transfers, the results indicate that transfers increased in election years and that transfers favoured voters in 'swing states'.

When focusing on other determinants of intergovernmental transfers, transfers in the current year have also depended on transfers received in the past, with an adjustment for errors (Wildavsky 1988). Transfers have depended on GDP per capita (because the federal government assumed the role of raising tax and returning tax revenues to the citizens in the jurisdictions that pay tax) and they have also been higher for states with higher dependency ratios. However, the results are also consistent with the criticism that the timing and the pattern of intergovernmental transfers reflects politicians' pursuit of political ambition.

The second conclusion is that results in this paper contribute to the literature that focuses on incumbents' strategies. Some studies provide evidence that governments disburse transfers to core supporters (e.g. Ansolabehere and Snyder Jr 2006; Larcinese at al. 2106; Solé-Ollé et al. 2008; Berry et al. 2010; Bracco et al. 2015). Others report evidence that incumbents disburse transfers to voters in swing-states (e.g. Case 2001; Dahlberg and Johansson 2002; Arulampalam et al. 2009; Banful 2011). This paper adds to this literature by providing evidence that, in Mexico, between 2004 and 2012, incumbents were more likely to increase transfers to voters in swing states.

This paper also contributes to the literature by offering insight into the *determinants* of incumbents' choice of strategy. The comparison of strategies in Mexico (1986 to 1992 and 2004 to 2012) highlights the relevance of electoral competition. When Kraemer focused on transfers between 1986 and 1992, he concluded that incumbents relied on transfers to reward core

supporters. By 2004 -2012 incumbents were relying on transfers to voters in swing states. With reference to the experience in Mexico (discussed in this paper), there are two reasons for expecting that an increase in electoral competition increases reliance on transfers to swing voters:

(i) Electoral competition is likely to change the composition of the assembly that disburses transfers and this increase in diversity reduces the efficacy of transfers to core supporters. The strategy of relying on transfers to core supporter is attractive when there is a clear alignment between the party incumbent in federal government (e.g. the President) and the party incumbent in the local jurisdiction (e.g. the state governor, or state legislator). If electoral competition increases the proportion of opposition parties represented at the assembly that disburses transfers, transfers are more likely to depend on 'pork barrel' deals. Electoral competition is likely to increase transfers to states that have not supported the incumbent ('governing') party. This weakens the alignment between: (a) the coincidence between a *governing* party at a federal level and an incumbent party at a state level and (b) receipt of transfers. Between 2004 and 2012 there was no evidence that this coincidence determined intergovernmental transfers in Mexico. [10]

(ii) Electoral competition sharpens the trade-off between reliance on a strategy that increases the *long-run* loyalty of core voters and a strategy that responds to the *immediacy* of winning the support of the median voters. Frey and Schneider (1978a; 1978b) demonstrate that, governments' inclination to deliver rents to core supporters, increases as the size of the electoral majority increases. When electoral margins are likely to be narrow, it is preferable to rely on disbursements to voters in 'swing states',

[10] Studies have reported the relevance of a co-incidence of the same governing political party at higher and lower levels of government when explaining the disbursement of transfers (e.g. Calvo and Murrilo 2004; Solé-Ollé and Sorribas-Navarro 2008; Migueis 2013; Abbott et al. 2015). In our research (focusing on disbursements from the Lower Chamber between 2004 and 2012) this co-incidence was not a significant determinant of intergovernmental transfers (the evidence is available from the authors on request).With evidence of the relevance of 'pork barrel' deals in the Chamber of Deputies, a clear relationship between co-incidence between the *governing* parties at federal and local jurisdictions was likely to be affected by the influence of opposition-party representatives in the Chamber and *their* agenda to favour their jurisdiction-constituencies. However, the evidence reported in this paper is consistent with the proposition that representatives of all parties in the Chamber attached greater importance to disbursement to voters in 'swing states'.

> where "..moderate voters who are indifferent between two parties can more easily be bought…" (Larcinese et al. 2006). In this paper, evidence is consistent with the proposition that incumbents at federal government have focused on electoral competition. The evidence is that both conditional and unconditional transfers increased in election years. It is also the case that representatives at federal government have increased conditional transfers by a greater extent to the states that are likely to deliver the narrowest electoral margin. The more that conditional transfers are associated with intervention by federal governments (to finance specific programmes), the greater the impact that an increase in conditional transfers is likely to exert in elections for representatives to the Chamber of Deputies.

The third conclusion in this paper is that it is not necessarily the case that reliance on pre-determined formulae for intergovernmental transfers, and reliance on a constitutional constraint on re-election to office, will eliminate the likelihood that politicians' will design intergovernmental transfers to pursue political ambition. As in Ghana (Banful 2011) and in Portugal (Veiga and Pinho 2007), pre-determined formulae in Mexico failed to eliminate politicians' discretion to design transfers to pursue political ambition.

The experience in Mexico, of reliance on a constitutional constraint (designed to ensure that politicians are not able to seek immediate re-election), offers more general insight into the likelihood that this constitutional constraint might eliminate politicians' pursuit of self-serving strategies. When predicting the extent to which constitutional constraints are likely to be successful, it is important to consider the way that politicians are likely to respond, collectively, to the constraint that has been introduced. The experience in Mexico is that, as politicians cannot stand for immediate re-election in their own constituencies, they must find future employment after their term of office and their prospects often depend on the influence that their political party is able to exert on their behalf (to find employment within their party's administration; within the government bureaucracy, or within lobby-group organisations). Also, as incumbents are able to become candidates after spending one term out of office, the fortunes of their party are also relevant when a politician intends to seek

political office as a representative of a different constituency.[11] Far from distancing politicians from the pursuit of political ambition, the constraint has heightened the importance of the electoral success of the incumbents' *political party*. As Moreno (2005:3) has observed: *"In the Mexican case, where re-election of public office is constitutionally forbidden, the problem of political survival consists of assuring the victory of the incumbent's party in the next electoral contest"*.

Politicians are likely to have a greater *incentive* to design intergovernmental transfers to win votes (rather than reward core supporters) when electoral competition increases, and pre-determined formulae and re-election constraints are unlikely to eliminate incumbents' *discretion* to rely on transfers to win votes.

[11] Based on the biographies provided on the *Cámara de Diputados* website (www.diputados.gob.mx) about each legislature member, 39% of the deputies (194 out of 500) were at some point members of their respective local state legislature, 72% of them within the last 6 years. Additionally, 34 of the 500 were Senators, while 84 have been members of the Lower Chamber at least twice.

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## Appendix

### Table 1A. Formulae for the Allocation of *Participaciones*

| Type of fund | Description |
|---|---|
| 1. General Fund of Contributions *(Fondo General de Participaciones)* | Based on (i) nominal resources allocated in 2007[1] and (ii) a component determined by: GDP growth weighted by population (60%); the level of local tax revenue weighted by population (10%); and the increase in local tax revenues weighted by population (30%). |
| 2. Municipal Development Fund | Based on (i) nominal amount allocated in 2007 and (ii) a component determined by: a percentage of the annual increase in the municipalities' collection of revenue for property and water rights, weighted by population. (Each state must distribute 100% of this allocation to the municipalities with formulae established by local legislation.) |
| 3. Fiscalization Fund | 30% depends on a state's GDP; 10% depends on goods seized from illegal entry into the country; 25% depends on the increase in the collection of revenue from 'small taxpayers'; 25% depends on the increase in revenue from the intermediate regime tax; 5% depends on the collection of small taxpayers revenue; 5% depends on the level of revenue from the intermediate regime. (This fund should be transferred to the municipalities with formulae established by local legislation.) |
| 4. Participationes by the final sale of gasoline and diesel (*IEPS*) | 81.8% (9/11) based on revenue from fuel consumption in the each state's territory.[2] (States must transfer at least 20% of the transfers to the municipalities and 70% of the resource must be shared with reference to municipalities' population.) |
| 5. Compensation fund | The distribution formula depends inversely on GDP (excluding oil production and mining). Only 10% is distributed to the top 10 states with the highest GDP. 18.2% (2/11) is the remaining proceed from a final tax on the sale of gasoline and diesel in each state. (States must transfer at least 20% to municipalities. 70% of these resources must be shared with the population.) |
| 6. Oil Extraction Fund | 75% depends on the gross value added from mining in each state, according to the classification of oil and gas defined in the last economic census, conducted by the INEGI. 25% is based on the value of natural gas production associated with the state (also according to the INEGI latest data). (States must transfer at least 20% of this fund to their municipalities.) |
| 7. Participationes from assignable taxes (*IEPS, ISAN* and *Possession*) | The *IEPS* is allocated to states in proportion to their *IEPS* national tax revenue. The *ISAN* is 100% of the proceeds from the state, as well as the car and property tax. (States must transfer at least 20% to municipalities.) |
| 8. Special participations for border and coastal towns | The allocation is based on improvements in the collection of the previous two years in water and property taxes, weighted with the coefficient of the immediately preceding year. (These resources are delivered directly to municipalities without the intervention of the state governments.) |

[1] Before 2008: 45.17% of the transfers were allocated proportionally to the population; 45.17% according to the collection of three federal taxes levied by the states (road tax, special taxes on alcohol beverages and tobacco and new cars tax); and 9.66% on a compensation basis, in inverse proportion to the number of people in each state.

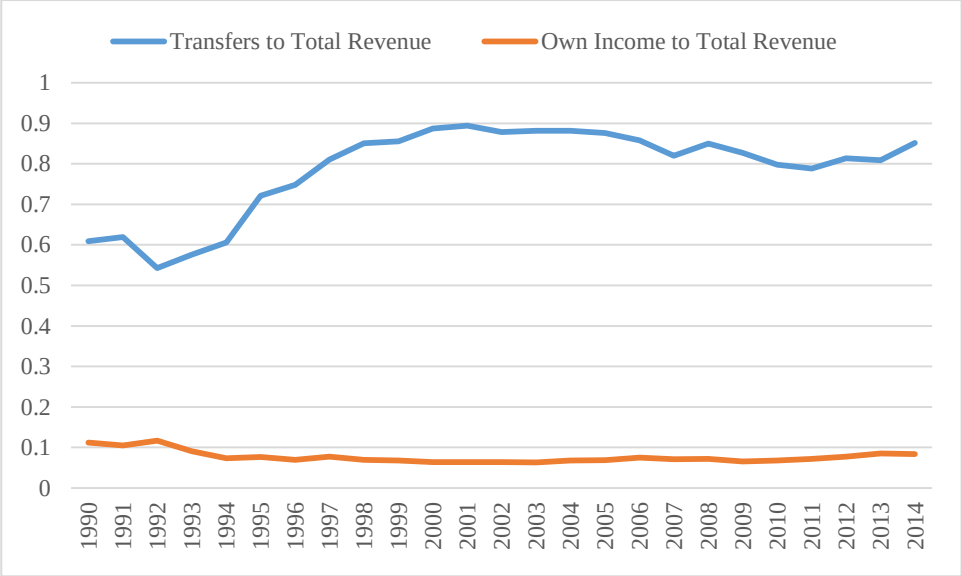
[2] Provided there is a cooperation agreement concluded with the Federation (in which states bind themselves to fulfil certain obligations).

**Table 2A. Formulae for the Allocation of *Aportaciones***

| Type of fund | Description |
|---|---|
| 1. Educational Payroll and Operating Expenses (*FAEB*)[1] | The formula is based on the number of students enrolled in the public education system in each state: an index of education quality elaborated by the Ministry of Education and the state's own expenditure on education. |
| 2. Health Services Contribution Fund (*FASSA*) | The formula depends on each state's: inventory of medical infrastructure; number of staff; operating expenses; investment and other resources specifically allocated by the Budget of Expenditures of the Federation (to promote equity in the health services). The formula for this last component depends on the deviation of the health budget deficit of each state compared to the total health budget deficit of all states "below the minimum accepted" by all states' deficit. The category "minimum accepted" is based on a balance between (i) the population of each state; (ii) the level of poverty and (iii) the level of mortality. Additional resources may be approved by the Federal Budget. (The Ministry of Health announces the formulae in the Official Diary.) |
| 3. Contribution Fund for Social Infrastructure (*FAIS*) | Depends on: income per capita; average education of the household; availability of living space; drainage; electricity and fuel for cooking (all measured and weighted at the household level). (The formulae for allocations to municipalities depends on: the employed population of the municipality earning less than two minimum wages; the municipal population aged 15 and over who cannot read and write; the local population living in private homes without availability of a drain connected to a septic tank, or street, and the local population living in private homes without electricity available. (All of these variables are measured relative to the state's population in the same conditions.) Before 2013, Distrito Federal was excluded from *FAIS*. |
| 4. Contribution Fund for Strengthening Municipalities and the territorial demarcations of Distrito Federal (*FORTRAMUNDF*). | Allocations (to municipalities and demarcations of Distrito Federal) are in proportion to the number of inhabitants of each state, according to the latest statistical information issued by *INEGI*. (State's and Distrito Federal governments should publish the formulae used to determine the amounts that correspond to each municipality, or territory, in their Official Diary before January 31 of each year.) |
| 5. Multiple Contributions Fund (*FAM* ) | The Ministries of Health and Education announce the formulae in the Official Diary no later than 31 January of each year. |
| 6. Contribution Fund for Technological Education and Education of Adults (*FAETA* ) | The formulae considers the specific priorities and compensatory strategies for the abatement of the lag in literacy, basic education and job training. Formulae are published by the Ministry of Education no later than January 31 each year in the Official Diary. |
| 7.Contribution Fund for Public Security of the States and Distrito Federal | The formulae includes: the population of the states and Distrito Federal; the rate of prison occupancy; the implementation of crime prevention programmes; the resources allocated to support actions on public security developed by the municipalities, and the progress in implementing the National Program of Public Security on professionalism, equipment, technological modernization and infrastructure. |
| 8. Contribution Fund for the Strengthening of Federal Entities (*FAFEF* before *PAFEF*) | The allocation is based on past contributions from 2007 and a weighted inverse factor (of GDP per capita and population) for each state. |

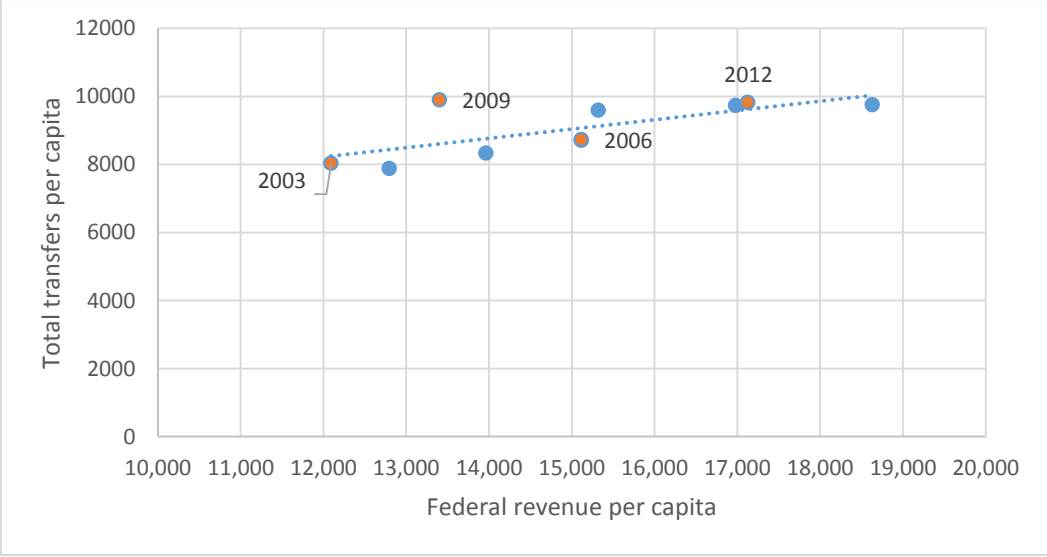
Notes: [1] In 2013 this was renamed the Educational Payroll and Operating Expenses.

**Figure 1 Transfers and Own Income Shares of States' Total Revenue**




*Source*: Based on data from Estadísticas de las Finanzas Públicas Estatales y Municipales (INEGI).

**Figure 2 Relationship between federal revenue per capita and total transfers per capita**




Notes: Data on federal revenues per capita comes from the OECD National Accounts, while data on transfers per capita is available through *Estadísticas de las Finanzas Públicas Estatales y Municipales*. The transfers per capita data represented in the chart are average values across the 31 states.

**Table 1: Unconditional and Conditional Transfers (in millions of 2001 pesos)**

| Transfers | 2001 | 2002 | 2003 |
|---|---|---|---|
| Unconditional (*Participaciones*) | | | |
| Executive Budget Proposal | 190,442 | 184,325 | 209,409 |
| Approved by Lower Chamber | 192,036 | 195,778 | 210,250 |
| Additional Resources | 1,594 | 11,453 | 841 |
| % of the Initial Budget | 0.83 | 5.85 | 0.40 |
| | | | |
| Conditional (*Aportaciones*) | | | |
| Executive Budget Proposal | 209,069 | 188,552 | 219,846 |
| Approved by Lower Chamber | 204,149 | 197,851 | 220,000 |
| Additional Resources | -4,920 | 9,299 | 154 |
| % of the Initial Budget | 2.41 | 4.70 | 0.07 |

*Source*: Calculations based on the data compiled by Sour et al. (2004)

**Table 2: Distribution of transfers across the Mexican states**

| State | Transfers per capita Mexican Pesos |
|---|---|
| Aguascalientes | 9,685 |
| Baja California | 7,728 |
| Baja California Sur | 11,650 |
| Campeche | 14,277 |
| Coahuila | 8,066 |
| Colima | 11,980 |
| Chiapas | 9,630 |
| Chihuahua | 8,170 |
| Durango | 10,051 |
| Guanajuato | 6,780 |
| Guerrero | 9,678 |
| Hidalgo | 8,805 |
| Jalisco | 7,448 |
| Estado de Mexico | 7,506 |
| Michoacan | 8,136 |
| Morelos | 8,517 |
| Nayarit | 11,123 |
| Nuevo Leon | 8,569 |
| Oaxaca | 10,239 |
| Puebla | 7,632 |
| Queretaro | 8,873 |
| Quintana Roo | 10,030 |
| San Luis Potosi | 8,870 |
| Sinaloa | 9,196 |
| Sonora | 10,005 |
| Tabasco | 14,628 |
| Tamaulipas | 8,998 |
| Tlaxcala | 9,556 |
| Veracruz | 8,095 |
| Yucatan | 8,851 |
| Zacatecas | 11,279 |
| | |
| All 31 States | |
| Mean | 9,432 |
| Standard Deviation | 2,495 |

Source: *Estadísticas de las Finanzas Públicas Estatales y Municipales*. Average values from 2004 to 2012.

**Table 3: Summary statistics**

| Label | Variable | Mean | Standard deviation | | |
|---|---|---|---|---|---|
| | | | Overall | Between | Within |
| | Total transfers per capita | 9,122 | 2,451 | 2,225 | 1,096 |
| *Tr* | Unconditional transfers per capita | 3,532 | 1,272 | 1,215 | 428 |
| | Conditional transfers per capita | 5,608 | 1,495 | 1,293 | 781 |
| *Y* | GDP per capita | 121,419 | 160,286 | 159,374 | 32,116 |
| *Un* | Unemployment rate | 0.037 | 0.017 | 0.011 | 0.014 |
| *Dr* | Dependency ratio | 58.655 | 6.206 | 5.456 | 3.101 |
| *Rev* | Total federal tax revenue per capita | 15,054 | 1,970 | - | 1,970 |
| | Own revenue per capita | 739 | 389 | 344 | 191 |
| *Elec* | Federal election dummy | 0.4 | 0.5 | - | 0.50 |
| *margin* | Lower chamber vote margin | 0.0 | 0.1 | 0.07 | 0.13 |
| *Vote* | Lower chamber vote share | 0.3 | 0.1 | 0.07 | 0.08 |

Source: E*stadisticas de las Finanzas Publicas Estatales y Municipales*, Instituto Nacional de Estadistica y Geografia (INEGI) and INEGI Economic Information Database.

**Table 4: Determinants of Mexican transfers incorporating the vote margin between the controlling party and the nearest rival**

| Control Variables | Total Transfers | Unconditional transfers | Conditional transfers |
|---|---|---|---|
| Lagged log transfers per capita ($tr_{it-1}$) | 0.684*** | 0.720*** | 0.474*** |
| | (0.120) | (0.050) | (0.122) |
| Lagged log GDP per capita ($y_{it-1}$) | 0.114*** | 0.112*** | 0.227** |
| | (0.042) | (0.041) | (0.109) |
| Lagged unemployment rate ($un_{it-1}$) | -0.364 | -0.735 | -1.068 |
| | (0.878) | (0.532) | (1.135) |
| Lagged dependency ratio ($dr_{it-1}$) | 0.649* | 0.087 | 1.665*** |
| | (0.340) | (0.233) | (0.628) |
| Lag of own to total revenue ($rev_{it-1}$) | 0.452 | -0.019 | 0.166 |
| | (0.436) | (0.421) | (0.607) |
| Federal election dummy ($elec_t$) | 0.092*** | 0.101*** | 0.142*** |
| | (0.026) | (0.015) | (0.047) |
| Lagged lower chamber vote margin ($margin_{it-1}$) | -0.105*** | -0.033 | -0.110** |
| | (0.033) | (0.038) | (0.050) |
| constant | -3.967** | -1.718** | -9.156*** |
| | (1.641) | (0.861) | (2.785) |
| No. of observations (N×T) | 279 | 279 | 279 |
| T | 9 | 9 | 9 |
| No. of instruments | 37 | 37 | 37 |
| Pseudo $R^2$ | 0.83 | 0.94 | 0.76 |
| Joint significance for time effects: $\chi^2_7$ | 136.72 | 472.87 | 103.01 |
| p-value | [0.000] | [0.000] | [0.000] |
| 2nd order serial correlation | -0.110 | -0.205 | 0.503 |
| p-value | [0.913] | [0.837] | [0.615] |
| Hansen | 19.011 | 20.779 | 18.704 |
| p-value | [0.645] | [0.534] | [0.664] |
| Difference-in-Hansen test | 10.56 | 9.29 | 4.83 |
| p-value | [0.648] | [0.751] | [0.664] |

Notes: Heteroscedastic robust standard errors are reported in parenthesis. The symbols *, **, and *** refer to levels of significance at 10%, 5%, and 1% levels respectively. The Hansen test reports that under the null the over-identified restrictions are valid. The Arellano-Bond test for 2nd order serial correlation is reported under the null of no autocorrelation. For the difference-in-Hansen test the null hypothesis suggest that the instrument subset for the level equation are orthogonal to the error (i.e. the instrument set is uncorrelated with the error term).

**Table 5: Determinants of Mexican transfers incorporating vote share of the controlling party of the lower chamber**

| Control Variables | Total Transfers | Unconditional transfers | Conditional transfers |
|---|---|---|---|
| Lagged log transfers per capita ($tr_{it-1}$) | 0.615*** | 0.712*** | 0.453*** |
| | (0.102) | (0.050) | (0.134) |
| Lagged log GDP per capita ($y_{it-1}$) | 0.136*** | 0.119** | 0.230** |
| | (0.049) | (0.048) | (0.105) |
| Lagged unemployment rate ($un_{it-1}$) | -0.397 | -0.839* | -1.072 |
| | (0.853) | (0.509) | (1.148) |
| Lagged dependency ratio ($dr_{it-1}$) | 0.752** | -0.039 | 1.689*** |
| | (0.347) | (0.226) | (0.633) |
| Lag of own to total revenue ($rev_{it-1}$) | 0.499 | 0.045 | 0.190 |
| | (0.443) | (0.443) | (0.608) |
| Federal election dummy ($elec_t$) | 0.098*** | 0.095*** | 0.142*** |
| | (0.025) | (0.015) | (0.048) |
| Lagged lower chamber vote share ($vote_{it-1}$) | -0.195*** | -0.207** | -0.132 |
| | (0.069) | (0.097) | (0.102) |
| Constant | -4.627*** | -1.170 | -9.327*** |
| | (1.606) | (0.873) | (2.810) |
| No. of observations (N×T) | 279 | 279 | 279 |
| T | 9 | 9 | 9 |
| No. of instruments | 37 | 37 | 37 |
| Pseudo $R^2$ | 0.80 | 0.94 | 0.76 |
| Joint significance for time effects: $\chi^2_7$ | 148.25 | 271.78 | 141.54 |
| p-value | [0.000] | [0.000] | [0.000] |
| 2nd order serial correlation | 0.385 | -0.066 | 0.294 |
| p-value | [0.700] | [0.947] | [0.769] |
| Hansen test | 18.676 | 23.805 | 18.499 |
| p-value | [0.665] | [0.358] | [0.676] |
| Difference in Hansen test | 9.71 | 5.95 | 7.60 |
| p-value | [0.717] | [0.948] | [0.868] |

Notes: see table 4